

Safety Data Sheet

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This Safety Data Sheet has been prepared in accordance with the Malaysia Occupational Safety and Health (Chemical Classification, Labelling and Safety Data Sheets) Regulations 2013.

SECTION 1: Identification

1.1. Product identifier

3M[™] Dynamar[™] Polymer Processing Additive FX 9613

Product Identification Numbers

98-0211-3502-9	98-0211-7339-2	98-0211-8075-1	UU-0049-0244-9	XA-0100-2104-7
XA-0100-2105-4	XA-0100-2106-2	XA-0100-2107-0	ZF-0002-1338-7	

1.2. Recommended use and restrictions on use

Recommended use

Polymer Processing Additive

1.3. Supplier's details

ADDRESS:3M Malaysia Sdn. Bhd., Level 8, Block F, Oasis Square, No.2, Jalan PJU 1A/7A, Ara Damansara 47301
Petaling, Jaya, SelangorTelephone:03-7884 2888E Mail:3mmyehsr@mmm.comWebsite:www.3M.com.my

1.4. Emergency telephone number

+60 03-7884 2888

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Specific Target Organ Toxicity (repeated exposure): Category 2.

2.2. Label elements Signal word Warning

Symbols Health Hazard |

Pictograms



Hazard Statements: H373

May cause damage to organs through prolonged or repeated exposure: respiratory system.

Precautionary statements

Prevention: P260

Do not breathe dust/fume/gas/mist/vapors/spray.

2.3. Other hazards

Avoid contact with hot extruded molten material or applicator tip. Avoid direct eye exposure to vapors., In case of eye/skin contact with molten material, immediately flush with cold water and cover with a clean dressing. Do not attempt to remove molten material. Have burn treated by a physician., May cause thermal burns., Vapors liberated during processing may be hazardous if inhaled. Eye, nose, throat and lung irritation can occur from such vapors.

SECTION 3: Composition/information on ingredients

This material is a mixture.

Ingredient	C.A.S. No.	% by Wt
VINYLIDENE FLUORIDE-	9011-17-0	88 - 92
HEXAFLUOROPROPYLENE POLYMER		
TALC	14807-96-6	4 - 9
CALCIUM CARBONATE	471-34-1	< 5
SYNTHETIC AMORPHOUS SILICA	112945-52-5	1 - 4

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Remove person to fresh air. If you feel unwell, get medical attention.

Skin Contact:

Immediately flush skin with large amounts of cold water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Cover affected area with a clean dressing. Get immediate medical attention.

Eye Contact:

Immediately flush eyes with large amounts of water for at least 15 minutes. DO NOT ATTEMPT TO REMOVE MOLTEN MATERIAL. Get immediate medical attention.

If Swallowed:

Rinse mouth. If you feel unwell, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Target organ effects following prolonged or repeated exposure. See Section 11 for additional details.

4.3. Indication of any immediate medical attention and special treatment required

Not applicable

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

In case of fire: Use a fire fighting agent suitable for ordinary combustible material such as water or foam to extinguish.

5.2. Special hazards arising from the substance or mixture

Exposure to extreme heat can give rise to thermal decomposition.

5.3. Special protective actions for fire-fighters

Wear full protective clothing, including helmet, self-contained, positive pressure or pressure demand breathing apparatus, bunker coat and pants, bands around arms, waist and legs, face mask, and protective covering for exposed areas of the head.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Evacuate area. Ventilate the area with fresh air. For large spill, or spills in confined spaces, provide mechanical ventilation to disperse or exhaust vapors, in accordance with good industrial hygiene practice. Refer to other sections of this SDS for information regarding physical and health hazards, respiratory protection, ventilation, and personal protective equipment.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Collect as much of the spilled material as possible. Use wet sweeping compound or water to avoid dusting. Sweep up. Place in a closed container approved for transportation by appropriate authorities. Clean up residue. Seal the container. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Do not breathe thermal decomposition products. Avoid skin contact with hot material. For industrial/occupational use only. Not for consumer sale or use. Store work clothes separately from other clothing, food and tobacco products. Do not breathe dust/fume/gas/mist/vapors/spray. Do not get in eyes, on skin, or on clothing. Do not eat, drink or smoke when using this product. Wash thoroughly after handling.

7.2. Conditions for safe storage including any incompatibilities

No special storage requirements.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

If a component is disclosed in section 3 but does not appear in the table below, an occupational exposure limit is not available for the component.

Ingredient	C.A.S. No.	Agency	Limit type	Additional Comments
DUST, INERT OR NUISANCE	14807-96-6	Malaysia OELs	TWA (proposed)(respirable	
			particles)(8 hours):3	
			mg/m3;TWA	
			(proposed)(Inhalable	
			particulate)(8 hours):10 mg/m3	
TALC	14807-96-6	ACGIH	TWA(respirable fraction):2	A4: Not class. as human
			mg/m3	carcin

TALC	14807-96-6	Malaysia OELs	TWA(respirable fraction)(8 hours):2 mg/m3	
DUST, INERT OR NUISANCE	471-34-1	Malaysia OELs	TWA (proposed)(respirable particles)(8 hours):3 mg/m3;TWA (proposed)(Inhalable particulate)(8 hours):10 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, inhalable particles	471-34-1	ACGIH	TWA(inhalable particulates):10 mg/m3	
Particles (insoluble or poorly soluble) not otherwise specified, respirable particles	471-34-1	ACGIH	TWA(respirable particles):3 mg/m3	

ACGIH : American Conference of Governmental Industrial Hygienists

CMRG : Chemical Manufacturer's Recommended Guidelines

Malaysia OELs : Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations

TWA: Time-Weighted-Average

STEL: Short Term Exposure Limit CEIL: Ceiling

CEIL. Ceiling

8.2. Exposure controls

8.2.1. Engineering controls

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use with appropriate local exhaust ventilation sufficient to maintain levels of thermal decomposition products below their exposure guidelines. Use general dilution ventilation and/or local exhaust ventilation to control airborne exposures to below relevant Exposure Limits and/or control dust/fume/gas/mist/vapors/spray. If ventilation is not adequate, use respiratory protection equipment. Local exhaust required above 400 C.

8.2.2. Personal protective equipment (PPE)

Eye/face protection

Select and use eye/face protection to prevent contact based on the results of an exposure assessment. The following eye/face protection(s) are recommended: Full Face Shield

Indirect Vented Goggles

Skin/hand protection

Select and use gloves and/or protective clothing approved to relevant local standards to prevent skin contact based on the results of an exposure assessment. Selection should be based on use factors such as exposure levels, concentration of the substance or mixture, frequency and duration, physical challenges such as temperature extremes, and other use conditions. Consult with your glove and/or protective clothing manufacturer for selection of appropriate compatible gloves/protective clothing.

Gloves made from the following material(s) are recommended: Neoprene

If this product is used in a manner that presents a higher potential for exposure (eg. spraying, high splash potential etc.), then use of protective coveralls may be necessary. Select and use body protection to prevent contact based on the results of an exposure assessment. The following protective clothing material(s) are recommended: Apron - Neoprene

Respiratory protection

An exposure assessment may be needed to decide if a respirator is required. If a respirator is needed, use respirators as part of a full respiratory protection program. Based on the results of the exposure assessment, select from the following respirator type(s) to reduce inhalation exposure:

For those situations where the material might be exposed to extreme overheating due to misuse or equipment failure, use a positive pressure supplied-air respirator.

Half facepiece or full facepiece air-purifying respirator suitable for particulates

For questions about suitability for a specific application, consult with your respirator manufacturer.

Thermal hazards

Wear heat insulating gloves, indirect vented goggles, and a full face shield when handling hot material to prevent thermal burns.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Specific Physical Form:	olid oosely Aggregated Solid White Odorless	
Color W	Vhite	
Odor O	Odorless	
0001		
Odor threshold N	No Data Available	
*	Iot Applicable	
Melting point/Freezing point N	Iot Applicable	
Boiling point/Initial boiling point/Boiling range	Iot Applicable	
Flash Point N	Io flash point	
	Iot Applicable	
	lot Classified	
Flammable Limits(LEL)	Iot Applicable	
	Not Applicable	
	Not Applicable	
	Not Applicable	
•	1.8 g/cm3	
Relative Density 1.	1.8 [<i>Ref Std</i> :WATER=1]	
Water solubility N	Negligible	
	No Data Available	
	Io Data Available	
<u> </u>	Iot Applicable	
	No Data Available	
	Not Applicable	
	Not Applicable	
Percent volatile N	Iot Applicable	
VOC Less H2O & Exempt Solvents N	Iot Applicable	
Bulk density 0.	.8 g/cm3	
Molecular weight N	lo Data Available	

SECTION 10: Stability and reactivity

10.1. Reactivity

This material may be reactive with certain agents under certain conditions - see the remaining headings in this section.

10.2. Chemical stability

Stable.

10.3. Possibility of hazardous reactions

Hazardous polymerization will not occur.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Al or Mg powder and high/shear temperature conditions

10.6. Hazardous decomposition products

<u>Substance</u>	<u>Condition</u>	
Carbonyl Fluoride	At Elevated Temperatures -	>300°C
Carbon monoxide	At Elevated Temperatures -	>300°C
Carbon dioxide	At Elevated Temperatures -	>300°C
Hydrogen Fluoride	At Elevated Temperatures -	>300°C
Toxic Vapor, Gas, Particulate	At Elevated Temperatures -	>300°C

Extreme heat arising from situations such as misuse or equipment failure can generate hydrogen fluoride as a decomposition product.

SECTION 11: Toxicological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. In addition, toxicological data on ingredients may not be reflected in the material classification and/or the signs and symptoms of exposure, because an ingredient may be present below the threshold for labeling, an ingredient may not be available for exposure, or the data may not be relevant to the material as a whole.

11.1. Information on Toxicological effects

Signs and Symptoms of Exposure

Based on test data and/or information on the components, this material may produce the following health effects:

Inhalation:

May cause additional health effects (see below).

During heating:

Polymer Fume Fever: Sign/symptoms may include chest pain or tightness, shortness of breath, cough, malaise, muscle aches, increased heart rate, fever, chills, sweats, nausea and headache.

Skin Contact:

During heating: Thermal Burns: Signs/symptoms may include intense pain, redness and swelling, and tissue destruction. Mechanical Skin irritation: Signs/symptoms may include abrasion, redness, pain, and itching.

Eye Contact:

During heating: Thermal Burns: Signs/symptoms may include severe pain, redness and swelling, and tissue destruction. Mechanical eye irritation: Signs/symptoms may include pain, redness, tearing and corneal abrasion.

Ingestion:

No known health effects.

Additional Health Effects:

Prolonged or repeated exposure may cause target organ effects:

Pneumoconiosis: Sign/symptoms may include persistent cough, breathlessness, chest pain, increased amounts of sputum, and changes in lung function tests.

Toxicological Data

If a component is disclosed in section 3 but does not appear in a table below, either no data are available for that endpoint or

the data are not sufficient for classification.

Acute Toxicity

Name	Route	Species	Value
Overall product	Inhalation- Dust/Mist(4 hr)		No data available; calculated ATE >12.5 mg/l
Overall product	Ingestion		No data available; calculated ATE >5,000 mg/kg
VINYLIDENE FLUORIDE-HEXAFLUOROPROPYLENE POLYMER	Dermal		LD50 estimated to be > 5,000 mg/kg
VINYLIDENE FLUORIDE-HEXAFLUOROPROPYLENE POLYMER	Ingestion	Rat	LD50 6,000 mg/kg
TALC	Dermal		LD50 estimated to be > 5,000 mg/kg
TALC	Ingestion		LD50 estimated to be > 5,000 mg/kg
CALCIUM CARBONATE	Dermal	Rat	LD50 > 2,000 mg/kg
CALCIUM CARBONATE	Inhalation- Dust/Mist (4 hours)	Rat	LC50 3 mg/l
CALCIUM CARBONATE	Ingestion	Rat	LD50 6,450 mg/kg
SYNTHETIC AMORPHOUS SILICA	Dermal	Rabbit	LD50 > 5,000 mg/kg
SYNTHETIC AMORPHOUS SILICA	Inhalation- Dust/Mist (4 hours)	Rat	LC50 > 0.691 mg/l
SYNTHETIC AMORPHOUS SILICA	Ingestion	Rat	LD50 > 5,110 mg/kg

ATE = acute toxicity estimate

Skin Corrosion/Irritation

Name	Species	Value
VINYLIDENE FLUORIDE-HEXAFLUOROPROPYLENE POLYMER	Rabbit	No significant irritation
TALC	Rabbit	No significant irritation
CALCIUM CARBONATE	Rabbit	No significant irritation
SYNTHETIC AMORPHOUS SILICA	Rabbit	No significant irritation

Serious Eye Damage/Irritation

Name	Species	Value
VINYLIDENE FLUORIDE-HEXAFLUOROPROPYLENE POLYMER	Rabbit	Mild irritant
TALC	Rabbit	No significant irritation
CALCIUM CARBONATE	Rabbit	No significant irritation
SYNTHETIC AMORPHOUS SILICA	Rabbit	No significant irritation

Sensitization:

Skin Sensitization

Name	Species	Value
SYNTHETIC AMORPHOUS SILICA	Human	Not classified
	and	
	animal	

Respiratory Sensitization

Name	Species	Value
TALC	Human	Not classified

Germ Cell Mutagenicity

Name	Route	Value
TALC	In Vitro	Not mutagenic
TALC	In vivo	Not mutagenic

 SYNTHETIC AMORPHOUS SILICA
 In Vitro
 Not mutagenic

Carcinogenicity

Name	Route	Species	Value
TALC	Inhalation	Rat	Some positive data exist, but the data are not sufficient for classification
SYNTHETIC AMORPHOUS SILICA	Not Specified	Mouse	Some positive data exist, but the data are not sufficient for classification

Reproductive Toxicity

Reproductive and/or Developmental Effects

Name	Route	Value	Species	Test Result	Exposure Duration
TALC	Ingestion	Not classified for development	Rat	NOAEL 1,600 mg/kg	during organogenesis
CALCIUM CARBONATE	Ingestion	Not classified for development	Rat	NOAEL 625 mg/kg/day	premating & during gestation
SYNTHETIC AMORPHOUS SILICA	Ingestion	Not classified for female reproduction	Rat	NOAEL 509 mg/kg/day	1 generation
SYNTHETIC AMORPHOUS SILICA	Ingestion	Not classified for male reproduction	Rat	NOAEL 497 mg/kg/day	1 generation
SYNTHETIC AMORPHOUS SILICA	Ingestion	Not classified for development	Rat	NOAEL 1,350 mg/kg/day	during organogenesis

Target Organ(s)

Specific Target Organ Toxicity - single exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
CALCIUM CARBONATE	Inhalation	respiratory system	Not classified	Rat	NOAEL 0.812 mg/l	90 minutes

Specific Target Organ Toxicity - repeated exposure

Name	Route	Target Organ(s)	Value	Species	Test Result	Exposure Duration
VINYLIDENE FLUORIDE- HEXAFLUOROPROPYL ENE POLYMER	Ingestion	liver	Not classified	Rat	NOAEL 10,000 mg/kg/day	2 weeks
TALC	Inhalation	pneumoconiosis	Causes damage to organs through prolonged or repeated exposure	Human	NOAEL Not available	occupational exposure
TALC	Inhalation	pulmonary fibrosis respiratory system	Not classified	Rat	NOAEL 18 mg/m3	113 weeks
CALCIUM CARBONATE	Inhalation	respiratory system	Not classified	Human	NOAEL Not available	occupational exposure
SYNTHETIC AMORPHOUS SILICA	Inhalation	respiratory system silicosis	Not classified	Human	NOAEL Not available	occupational exposure

Aspiration Hazard

For the component/components, either no data are currently available or the data are not sufficient for classification.

Please contact the address or phone number listed on the first page of the SDS for additional toxicological information on this material and/or its components.

SECTION 12: Ecological information

The information below may not be consistent with the material classification in Section 2 if specific ingredient classifications are mandated by a competent authority. Additional information leading to material classification in

Section 2 is available upon request. In addition, environmental fate and effects data on ingredients may not be reflected in this section because an ingredient is present below the threshold for labeling, an ingredient is not expected to be available for exposure, or the data is considered not relevant to the material as a whole.

12.1. Toxicity

Acute aquatic hazard:

Not acutely toxic to aquatic life by GHS criteria.

Chronic aquatic hazard:

Not chronically toxic to aquatic life by GHS criteria.

No product test data available

Material	Cas #	Organism	Туре	Exposure	Test Endpoint	Test Result
VINYLIDENE FLUORIDE- HEXAFLUOROP ROPYLENE POLYMER	9011-17-0	N/A	Data not available or insufficient for classification	N/A	N/A	n/a
TALC	14807-96-6	N/A	Data not available or insufficient for classification	N/A	N/A	N/A
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Green algae	Analogous Compound	72 hours	ErC50	>173.1 mg/l
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Sediment organism	Analogous Compound	96 hours	EC50	8,500 mg/kg (Dry Weight)
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Water flea	Analogous Compound	24 hours	EL50	>10,000 mg/l
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Zebra Fish	Analogous Compound	96 hours	LL50	>10,000 mg/l
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Green algae	Analogous Compound	72 hours	NOEC	173.1 mg/l
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Water flea	Analogous Compound	21 days	NOEC	68 mg/l
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Activated sludge	Experimental	3 hours	EC50	>1,000 mg/l
CALCIUM CARBONATE	471-34-1	Green algae	Experimental	72 hours	EC50	>100 mg/l
CALCIUM CARBONATE	471-34-1	Rainbow Trout	Experimental	96 hours	LC50	>100 mg/l
CALCIUM CARBONATE	471-34-1	Water flea	Experimental	48 hours	EC50	>100 mg/l
CALCIUM CARBONATE	471-34-1	Green algae	Experimental	72 hours	EC10	100 mg/l

12.2. Persistence and degradability

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
VINYLIDENE FLUORIDE- HEXAFLUOROP ROPYLENE	9011-17-0	Data not availbl- insufficient	N/A	N/A	N/A	N/A

POLYMER						
TALC	14807-96-6	Data not availbl- insufficient	N/A	N/A	N/A	N/A
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Data not availbl- insufficient	N/A	N/A	N/A	N/A
CALCIUM CARBONATE	471-34-1	Data not availbl- insufficient	N/A	N/A	N/A	N/A

12.3. Bioaccumulative potential

Material	CAS No.	Test Type	Duration	Study Type	Test Result	Protocol
VINYLIDENE FLUORIDE- HEXAFLUOROP ROPYLENE POLYMER	9011-17-0	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
TALC	14807-96-6	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
SYNTHETIC AMORPHOUS SILICA	112945-52-5	Data not available or insufficient for classification	N/A	N/A	N/A	N/A
CALCIUM CARBONATE	471-34-1	Data not available or insufficient for classification	N/A	N/A	N/A	N/A

12.4. Mobility in soil

Please contact manufacturer for more details

12.5 Other adverse effects

No information available

SECTION 13: Disposal considerations

13.1. Disposal methods

According to the Environmental Quality (Scheduled Wastes) Regulations 2005, scheduled waste has to be sent to a prescribed premise for recycling, treatment or disposal. Please approach Kualiti Alam for proper schedule waste classification and disposal.

SECTION 14: Transport Information

Not hazardous for transportation.

Marine Transport (IMDG)

UN Number:None assigned. Proper Shipping Name:None assigned. Technical Name:None assigned. Hazard Class/Division:None assigned. Subsidiary Risk:None assigned. Packing Group:None assigned. Limited Quantity:None assigned. Marine Pollutant: None assigned. Marine Pollutant Technical Name: None assigned. Other Dangerous Goods Descriptions: None assigned.

Air Transport (IATA)

UN Number:None assigned. Proper Shipping Name:None assigned. Technical Name:None assigned. Hazard Class/Division:None assigned. Subsidiary Risk:None assigned. Packing Group:None assigned. Limited Quantity:None assigned. Marine Pollutant: None assigned. Marine Pollutant Technical Name: None assigned. Other Dangerous Goods Descriptions: None assigned.

Transportation classifications are provided as a customer service. As for shipping, YOU remain responsible for complying with all applicable laws and regulations, including proper transportation classification and packaging. 3M's transportation classifications are based on product formulation, packaging, 3M policies and 3M's understanding of applicable current regulations. 3M does not guarantee the accuracy of this classification information. This information applies only to transportation classification and not the packaging, labeling or marking requirements. The above information is only for reference. If you are shipping by air or ocean, YOU are advised to check & meet applicable regulatory requirements.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Global inventory status

Contact 3M for more information. The components of this material are in compliance with the provisions of the Korea Chemical Control Act. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Australia National Industrial Chemical Notification and Assessment Scheme (NICNAS). Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Japan Chemical Substance Control Law. Certain restrictions may apply. Contact the selling division for additional information. The components of this material are in compliance with the provisions of Philippines RA 6969 requirements. Certain restrictions may apply. Contact the selling division for additional information. The components of CEPA. This product complies with Measures on Environmental Management of New Chemical Substances. All ingredients are listed on or exempt from on China IECSC inventory. The components of this product are in compliance with the chemical notification requirements of TSCA. All required components of this product are listed on the active portion of the TSCA Inventory.

SECTION 16: Other information

DISCLAIMER: The information in this Safety Data Sheet (SDS) is based on our experience and is correct to the best of our knowledge at the date of publication, but we do not accept any liability for any loss, damage or injury resulting from its use (except as required by law). The information may not be valid for any use not referred to in this SDS or use of the product in combination with other materials. For these reasons, it is important that customers carry out their own evaluation to satisfy themselves as to the suitability of the product for their own intended applications. In addition, this SDS is being provided to convey health and safety information. If you are the importer of record of this product into Malaysia, you are responsible for all applicable regulatory requirements, including, but not limited to, product registrations/notifications, substance volume tracking, and potential substance registration/notification.

3M Malaysia SDSs are available at www.3M.com.my